

**STATEMENT OF THE LEGAL AND FACTUAL BASIS**  
**FOR THE TERMS OF THE PROPOSED PERMIT**  
**[MDAQMD Rule 1203(B)(1)(a)(i)]**

TITLE V FEDERAL PERMIT TO OPERATE  
Facility named – IMC Chemicals,

Federal Operating Permit # 90002

Issued: March 11, 2002

Processing Engineer:

William Weese, EIT  
Air Quality Engineer

A. FACILITY IDENTIFYING INFORMATION:

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<u>Owner/Company Name:</u>	IMC CHEMICALS, INC.
<u>Owner Mailing Address:</u>	IMC CHEMICALS, INC. P.O. Box 367 Trona, CA 93592-0367
<u>Facility Names:</u>	TRONA, ARGUS AND WEST END (FACILITIES)
<u>Facility Location:</u>	13200 Main Street Trona, CA 93562
<u>Mailing Address:</u>	IMC CHEMICALS, INC. P.O. Box 367 Trona, CA 93592-0367
<u>MDAQMD Federal Operating Permit Number:</u>	90002
<u>MDAQMD Company Number:</u>	0090
<u>MDAQMD Facility Number:</u>	002
<u>Responsible Official:</u>	Mr. John F. Tancredi
<u>Title:</u>	President IMC Chemicals
<u>Phone Number:</u>	
<u>Facility "Site" Contacts:</u>	Mr. Ross H. May
<u>Phone Number:</u>	760-372-2197
<u>Facility "Off Site" Contacts:</u>	none
<u>Phone Number:</u>	
<u>Nature of Business:</u>	Sodium and Boron Minerals Processing Facility
<u>SIC Code:</u>	2819
<u>Facility Location:</u>	UTM – 466E/3957N

**STATEMENT OF THE LEGAL AND FACTUAL BASIS FOR THE TERMS  
OF THE PROPOSED PERMIT [1203(B)(1)(a)(i)]**

Statutory and Regulatory Authorities: Pursuant MDAQMD Regulation 12, Program - Federal Operating Permits, a.k.a. Title V (Adopted 7/25/94, Amended 02/22/95, Additional Rules adopted 06/28/95, 7/31/95) and 02/05/96 FR 4217 (Interim Approval), in accordance with Rule 221 - *Federal Operating Permit Requirement*, 40 CFR 52.220(c)(216)(i)(A)(2) - 02/05/96 61 FR 4217 of the Clean Air Act of 1990, the Mojave Desert Air Quality Management District issues this permit.

Federal Operating Permit (FOP number: 90002) for IMC CHEMICALS, INC. (IMC), TRONA, ARGUS, and WEST END – Plants/Facilities. IMC is a Solution Mining and Chemicals Processing Facility located at 13200 Main Street, Trona, California 93562.

The IMC CHEMICAL COMPANY, Title V Federal Operating Permit # 90002, was developed by consulting District Permit conditions for existing equipment, and SIP Rule and NSPS requirements for Federal Rules, applicable to the facility. In addition, the MDAQMD Title V Program Rules, having received Interim Program Approval from the USEPA, were also consulted.

**I. BACKGROUND:**

The Federal Clean Air Act Amendments of 1990 established a nation-wide permit to operate program commonly known as "Title V". MDAQMD adopted Regulation XII [Rules 1200 - 1210] and Rule 221 - *Federal Operating Permit Requirement*; [Version in SIP = Current, 40 CFR 52.220(c)(216)(i)(A)(2) - 02/05/96 61 FR 4217], to implement the Federal Operating Permit, and received Interim Program Approval from EPA on March 6, 1996.

Federal Operating Permit (FOP number: 90002) for IMC CHEMICAL COMPANY located at 13200 Main Street, Trona, CA 93562. This *Statement of Legal and Factual Basis*, pursuant to Rule 1203(B)(1)(a)(i), is intended to assess the adequacy of this Title V Application and to explain the District's basis in composing the Title V - Federal Operating Permit for IMC CHEMICAL COMPANY. IMC CHEMICAL COMPANY - Title V Federal Operating Permit application received on February 25, 1997 met the Part 70 application deadline of March 6, 1997 for MDAQMD facilities [NOTE: all MDAQMD facilities subject to Title V were required to submit Title V applications by March 6, 1997].

The facilities Title V Permit Application was reviewed and subsequently determined complete, as indicated by the Districts' letter [Attachment A] to IMC CHEMICAL COMPANY, dated April 23, 1997.

The District's approach to the Title V program is to issue a single Federal Operating Permit for the entire facility that satisfies the federal requirement for a permit under Rule 221 [NOTE: *MDAQMD maintains separate Title V and District permits programs*]. All Federal, State and most District only requirements, associated with the emission of air contaminants, are included

in the Federal Operating Permit. All documents, which are not readily available to the public, and are necessary to support the permit, are to be included. The District has taken the approach that the following documents are readily available to the public, and therefore, are not included: *Code of Federal Regulations, California Code of Regulations and Health and Safety Code, District Rules and Regulations [both documents are current and appear in the California State Implementation Plan], the continuous emission monitoring system quality assurance and monitoring plans [available at IMC CHEMICAL COMPANY, and the District's office], all test methods, copies of District Authorities to Construct and Permits to Operate [available at the District's office].*

The USEPA, Region 9 was e-mailed a draft of the proposed permit on October 30, 2001 [a hard copy was mailed November 1, 2001]. The USEPA statutory 45-day review period will expire on 12/17/2001. The 30 day Public Notice was published on 11/02/2001 and ended on 12/03/2001.

USEPA commented by letter dated 12/12/2001 and received on 12/19/2001. The District has reviewed the EPA comments and has modified this "Statement of Basis" document and Title 5 Permit to address the New Source Performance Standard concerns as well as the other issues raised in this letter.

**Rule 1203 (D)(1) outlines Title V Permit content requirements as follows:**

**II. TITLE V PERMIT CONTENTS [Rule 1203 (D)(1)]:**

All Federal Operating Permits shall contain, at a minimum, the following terms, and conditions:

A. Identification of Applicable Requirements:

1. Standard conditions for generally applicable requirements do not list those processes to which they apply as allowed by EPA's White Paper One, page 11, section 4, last sentence of paragraph 2.

2. Minor New Source Review (NSR). All existing permit conditions, which are based on previous authority to construct conditions, are considered applicable federal requirements because those pre-construction review actions resulted from SIP Rule 203 - *Permit to Operate* and SIP Rule 204 - *Permit Conditions*.

3. Federal Applicable/Enforceable Requirements:

District Rule 1201 (P): "Federally Enforceable" - Any requirement, condition or other term which is fully enforceable by USEPA pursuant to the provisions of 42 U.S.C. §7413 (Federal Clean Air Act §113) or the public pursuant to the provisions of 42 U.S.C. §7604 (Federal Clean Air Act §304).

District Rule 1201 (G): "Applicable Requirement" - Any of the following requirements, including requirements that have been promulgated or approved by USEPA through rulemaking at the time of permit issuance but have future effective dates, as they apply to a Facility or Permit Unit:

- (a) Any standard or other requirement contained in the applicable implementation plan for the District, and any amendments thereto, approved or promulgated pursuant to the provisions of Title I of the Federal Clean Air Act (42 U.S.C. §§7401-7515).
- (b) Any term or condition of any preconstruction permit issued pursuant to regulations approved or promulgated under Title I of the Federal Clean Air Act (42 U.S.C. §§7401-7515).
- (c) Any standard or other requirement under 42 U.S.C. §§7411, Standards of Performance for New Stationary Sources (Federal Clean Air Act §111); 42 U.S.C. §7412, Hazardous Air Pollutants (Federal Clean Air Act §112); and any regulations promulgated thereunder.
- (d) Any standard or other requirement under Title IV of the Federal Clean Air Act (42 U.S.C. §§7651-7651o) or the regulations promulgated thereunder.
- (e) Any requirements regarding monitoring, analysis, and compliance established pursuant to 42 U.S.C. §7414(a)(3), Record keeping, Inspections, Monitoring and Entry (Federal Clean Air Act §114); 42 U.S.C. §7661c(b), Permit Requirements

and Conditions (Federal Clean Air Act §504); and the regulations promulgated thereunder.

- (f) Any standard or other requirement governing Solid Waste Incineration Units under 42 U.S.C. §7429, Solid Waste Combustion (Federal Clean Air Act §129) and the regulations promulgated thereunder.
  - (g) Any standard or other requirement for consumer or commercial products under 42 U.S.C. §7511b(e) (Federal Clean Air Act §183) and the regulations promulgated thereunder.
  - (h) Any standard or other requirement of the regulations promulgated under Title VI of the Federal Clean Air Act (42 U.S.C. §§7671-7671q) unless the USEPA has determined that such requirement need not be contained in a Federal Operating Permit.
  - (i) Any national ambient air quality standard or increment or visibility requirement under part C of Title I of the Federal Clean Air Act (42 U.S.C. §§7401-7515), but only as it would apply to temporary sources pursuant to the provisions of 42 U.S.C. 7661c(e) (Federal Clean Air Act §504(e)).
4. As a result of the 12/12/2001 EPA comment letter, the federally applicable/enforceable requirements listed in the original/updated IMC Chemical Title V Application and those requirements included in the proposed Title V Permit were re-evaluated. See the following discussions below:

40 CFR Part 61, Subpart M - National Emission Standard for Asbestos

This facility on an as needed basis is subject to Section 61.145 through 61.147 - standards for the demolition and renovation of asbestos. Historically, the facility has been in compliance with the requirements of these standards. Appropriate conditions will be included on the permit to ensure compliance with these requirements.

40 CFR Part 82 - Protection of Stratospheric Ozone

This facility is in compliance with the requirements of this part. Any servicing of air conditioners is performed by a qualified contracting company. An appropriate condition will be included on the permit to ensure continued compliance with these requirements.

40 CFR, Parts 60.7, 60.8 and 60.13; Subpart A - New Source Performance Standards, General Provisions

Some facility equipment are subject to the requirements of this part because the facility started construction/reconstruction after the respective applicability dates.

Specific 40 CFR, Part 60, Subpart GG, D and OOO discussions as follows:

### Item 1

US EPA indicates the following NSPS provisions should be added to the Title V permit for the IMC Westend Gas Turbine: (See IMC T5 Permit, Part III, Westend, item #s 27 & 28A)

40 CFR 60.7(f) – This section requires maintenance of records including information related to the performance of the CEMS, “...required by this part...”. Subpart GG does not require a CEMS for the Westend turbine. The District permits for the turbine stipulate that the CEMS meet the requirements of 40 CFR 60 Appendix B, but because this is a District requirement and not a Subpart GG requirement, maintaining CEMS records per 60.13 should not be required.

60.13 - EPA implies that a CEMS is required for the gas turbine. We believe this is incorrect. A CEMS is only needed if required by the applicable subpart (60.13a) and Subpart GG does not require a CEMS for the IMC type of system. The only monitoring system required by GG is water/fuel ratio for systems that use water injection (60.334a). The IMC Westend turbine does not use water injection. As an example, Subpart D, which applies to Boilers #25 and #26, requires a CEMS in paragraph 60.45(a). There is no similar reference in Subpart GG. The requirements for a CEMS in the District permits do not stem from Subpart GG.

60.334(b) – The IMC Westend turbine is fired on pipeline quality natural gas supplied through the PG&E transmission system. The percent by weight of sulfur in this gas is typically orders of magnitude lower than the 0.8 percent limit established in 60.333 (b) and reported per 60.334(b). Accordingly, the monitoring requirements should be minimal. Gas composition reports similar to the one in the Title V application can be supplied by PG&E. To minimize the paper work of maintaining records for monitoring the concentration of sulfur that is so far below the standard, a quarterly copy of the PG&E report should be more than sufficient.

60.334(c) – The only paragraph applicable to the Westend turbine is 60.334(c)(2). Even though (c)(2) could apply, the likelihood is virtually nonexistent considering that the turbine only burns pipeline quality natural gas. (c)(1) and (c)(3) apply to turbines which use water or steam injection. The IMC Westend turbine does not use water or steam. (c)(4) applies during the use of emergency fuel. The IMC Westend turbine does not utilize an emergency fuel. The only fuel used by this turbine is natural gas supplied through the PG&E distribution system.

Applicable portions of NSPS limits and requirements, Subparts D, GG, and OOO have been added to the IMC Title 5 Permit with clarification.

### Item 2

Sulfur content monitoring - As stated in the comments for Item 1, the weight percent of sulfur in the natural gas supplied to the IMC Westend turbine is typically orders of magnitude below the 0.8 percent limit allowed per 60.333(b). Even though this limit does apply to the Westend turbine, the value was most likely intended primarily for turbines utilizing fuel oil. The recording requirements for this limit should be minimal. Applicable portions of NSPS limits and

requirements, Subpart GG have been added to these sections of the IMC Title 5 Permit with clarification.

Item 3

Subpart D applies to Argus Boilers #25 and #26 (Part III, item #s 43, 46 & 48-A, District Permit #s B000555 and B000554). In addition, Subpart OOO applies to the following; transfer point baghouses for the Monohydrate and Bicarbonate fluid bed dryers in Argus (Part III, item #s 20, 21 & 21-A, District Permit #s B004540 and B003672); the Consolidated Packaging and Warehouse Facility baghouse in Trona (Part III, item #s 33, 34, 35, 36, & 36-A, District Permit #s B003655 and C003656); and the Soda Ash Storage Area baghouse in Trona (Part III, item #s 33, 34, 35, 36, & 36-A, District Permit #s T003427 and C003428). Applicable portions of NSPS limits and requirements, Subpart OOO have been added to these sections of the IMC Title 5 Permit.

Item 4

There are no diesel fired IC engines at this facility greater than or equal to 1000 horsepower, therefore these EPA proposals do not apply in the IMC case. However, the District agrees to clarify Part II, condition 12, to reflect the CAPCOA/CARB/EPA region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources.

Item 5

The District clarifies: Part IV, Section A, item # 12 has been expanded and clarified per your comment:

12. Compliance with condition(s) contained in this Federal Operating Permit shall be deemed compliance with the Applicable Requirement underlying such condition(s). The District clarifies that “only” Applicable Requirements listed & identified elsewhere in this Title V Permit are covered by this Permit Shield and does not extend to any unlisted/unidentified conditions pursuant to the requirements of 40 CFR 70.6(f)(i).  
[40 CFR 70.6(f)(1); Rule 1203(G)(1)]

Item 6

The District agrees to add in Part II, Section B, item # 5 to define “Prompt Reporting” as agreed:

5. Owner/Operator shall promptly report all deviations from federal operating permit requirements including, but not limited to; any emissions in excess of permit conditions, deviations attributable to breakdown conditions, and any other deviations from permit conditions. Such reports shall include the probable cause of the deviation and any corrective action or preventative measures taken as a result of the deviation. [Rule 1203(D)(1)(e)(ii) and Rule 430(C)]



Prompt reporting shall be determined as follows:

- (a) For deviations involving emissions of air contaminants in excess of permit conditions including but not limited to those caused by a breakdown, prompt reporting shall be within one hour of the occurrence of the excess emission or within one hour of the time a person knew or reasonably should have known of the excess emission. Documentation and other relevant evidence regarding the excess emission shall be submitted to the District within sixty (60) days of the date the excess emission was reported to the District. [SIP Pending: Rule 430 - Breakdown Provisions as amended 12/21/94 and submitted 2/24/95]
- (b) For other deviations from permit conditions not involving excess emissions of air contaminants shall be submitted to the District with any required monitoring reports at least every six (6) months. [Rule 1203(D)(1)(e)(i)]

#### Item 7

The District will clarify the "Statement of the Legal and Factual Basis for the Terms of the Proposed Permit" prepared for both permits, in response to EPA comment. Clarification has been added where needed, especially for the IMC permit.

However, the District's position is that it has followed the contents requirements provided for in the Clean Air Act and subsequent District Title 5 Rules. Further, the District has been following these procedures for the issuance of "16 Title 5 Permits" over at least 3 years. While we agree to clarify the permit Statement of Basis, we do not intend to drop what we have been doing for the past three years, which has been acceptable for 3 years under other EPA Title 5 Permit review staff. Pursuant to your comments we will strive to improve & clarify these documents as we go through the remainder of the T5 permit issuance process.

#### Item 8

To reduce confusion these conditions will be placed only "one time" at the beginning of the T5 permit and will require a facility to keep records and otherwise monitor to comply with MDAQMD permit specific monitoring requirements. NSPS requirements have been added to the specific equipment for which it applies. See Part II, condition # 18 of the IMC Title 5 Permit.

- C. Emissions limitations and/or standards, including operational limitations, which assure compliance with all Applicable Requirements and a reference to the origin and authority of each term or condition contained in the Federal Operating Permit: **COMPLETED**
- D. Monitoring requirements including but not limited to: [40 CFR 70.6(a)(1)] [see following] **The December 12, 2001 EPA Comment Letter led to the incorporation of several NSPS Subpart GG, D and OOO requirements in addition to already included District Periodic Monitoring Requirements contained in District permits:**

- (i) All emissions monitoring and analysis methods required by an Applicable Requirement.
- (ii) Periodic monitoring, testing or record keeping (including test methods sufficient to yield reliable data) to determine compliance with an Applicable Requirement that does not directly require such monitoring.
- (iii) Necessary requirements concerning use and maintenance of equipment including the installation and maintenance of monitoring equipment.

Other - IMC CHEMICAL COMPANY - Facility Support Equipment

The underground gasoline tank was constructed and given a PTO pursuant to District Rule 461. No NSPS, NESHAPS or MACT apply to this equipment or the IMC CHEMICAL COMPANY - facility because no MACT has been proposed and the total toxic emissions are less than the applicability threshold of 10 tons per year.

- E. Record keeping requirements, where applicable, including but not limited to: [see following] **All COMPLETED**
  - (i) Records of required monitoring information including dates and times of sampling, operating conditions at the time of sampling, date of analysis, analytical techniques and methods, the person or company performing the analysis, and the results of the analysis.
  - (ii) The retention of all records for a period of at least five (5) years from the date of monitoring.
- F. Reporting requirements, where applicable, including but not limited to: [see following] **All COMPLETED**
  - (i) Submittal of any required monitoring reports at least every six (6) months.
  - (ii) Prompt reporting of all deviations from permit requirements including those attributable to breakdown conditions. Prompt reporting shall be determined in compliance with District Rule 430.
- G. Various Standardized Provisions and/or Conditions: [see following] **All COMPLETED**
  - (i) A severability clause.
  - (ii) A provision which states that the permit holder shall comply with all conditions of the Federal Operating Permit. Any noncompliance constitutes a violation of the Federal Clean Air Act and is grounds for enforcement action; the termination, revocation and reissuance, or modification of the Federal Operating Permit; and/or grounds for denial of a renewal application.
  - (iii) A provision which states that the need to halt or reduce activity to maintain compliance with the provisions of the Federal Operating Permit, or for any other reason, is not a defense in an enforcement action.
  - (iv) A provisions which states that the Federal Operating Permit may be modified, revoked, reopened, reissued or terminated for cause.

- (v) A provision which states that the filing of an application for modification; a request for revocation and re-issuance, or termination; or notifications of planned changes, or anticipated noncompliance does not stay any condition of the Federal Operating Permit.
  - (vi) A provision which states that the permit does not convey any property rights of any sort, or any exclusive privilege.
  - (vii) A provision which states that the Permit holder shall furnish to the District, within a reasonable time as specified by the District, any information that the District may request in writing to determine whether cause exists for modifying, revoking and reissuing, terminating or determining compliance with the Federal Operating Permit.
  - (viii) A provision which states that the Permit holder shall, upon request, furnish to the District copies of records required to be kept pursuant to conditions of the Federal Operating Permit.
  - (ix) A provision requiring the payment of annual permit renewal fees and other applicable fees as prescribed in District Rule 312.
  - (x) A provision stating that no permit revision shall be required under any approved economic incentives, marketable permits, emissions trading or other similar programs provided for in the permit.
  - (xi) Terms and conditions, if applicable, for reasonably anticipated operating scenarios identified by the Facility in its application which require the Facility, contemporaneously with making the change from one operating scenario to another, to record in a log at the Facility a record of the scenario under which it is operating; and ensure that each alternative operating scenario meets all Applicable Requirements.
  - (xii) Terms and conditions, if requested by the applicant, for the trading of emissions increases and decreases within the Facility to the extent any Applicable Requirements allow for such trading without case-by-case approval. Such terms conditions shall include all terms and conditions to determine compliance with all Applicable Requirements; and meet all Applicable Requirements.
- H. Compliance Conditions: [see following] **All COMPLETED**
- (i) Inspection and entry requirements which require that the Permit Holder allow an authorized representative of the District to enter upon the Permit holder's premises, at reasonable times.
  - (ii) Provisions which allow an authorized representative of the District to have access to and copy any records that must be kept under conditions of the Federal Operating Permit.
  - (iii) Provisions which allow an authorized representative of the District to inspect any Permit Unit, equipment, practice, or operation regulated or required under the Federal Operating Permit.
  - (iv) Provisions which allow an authorized representative of the District to sample or monitor substances or parameters for the purpose of assuring compliance with the Federal Operating Permits or with any Applicable Requirement.

- (v) A Compliance Plan.
- (vi) A restatement, if applicable, of the requirement that the Permit holder submit progress reports at least semiannually pursuant to a schedule of compliance. Such progress reports shall comply with the provisions of District Rule 1201(I)(3)(iii).
- (vii) Certification requirements including the frequency of submission, not less than annually, for Compliance Certifications.
- (viii) Requirements that methods for monitoring compliance be included in the Compliance Certifications.
- (ix) Requirements that all Compliance Certifications be contemporaneously submitted to USEPA.
- (x) Any additional certification requirements as specified in 42 U.S.C §7414(a)(3), Recordkeeping Inspections Monitoring and Entry (Federal Clean Air Act §114(a)(3)) and 42 U.S.C. §7661c(b), Permit Requirements and Conditions (Federal Clean Air Act §503(b)) or in regulations promulgated thereunder.

I. Fugitive Emissions: **COMPLETED**

- (i) Fugitive emissions shall be included in the permit and permit conditions in the same manner as stack emissions.

**III. CONCLUSIONS AND RECOMMENDATION:**

In conclusion, the proposed **IMC CHEMICAL COMPANY - Title V Permit** has been found to satisfy all of the requirements of District Rule 221, Rule 312, Regulation XII Rules, and the District's Title V Permit Program requirements.

***Therefore, it is recommended that this Title V - Federal Operating Permit be issued to satisfy these requirements on March 11, 2002.***

*The proposed draft IMC CHEMICAL COMPANY - Title V Permit & the proposed Statement of Basis documents was electronically e-mailed on October 30 & 31, 2001 [hardcopy mailed November 15, 2001] to Mr. Roger Kohn, U.S. EPA Region 9; sent to:*

*[Kohn.Roger@epamail.epa.gov]*

Roger Kohn

USEPA - Air Division (AIR-3)

75 Hawthorne Street

San Francisco, CA 94105-3901

## APPENDIX “A”

### DISTRICT / SIP RULE COMPLIANCE DEMONSTRATIONS:

- A. Rule 406: Owner/Operator shall not discharge into the atmosphere from this facility, from any single source of emissions whatsoever, Sulfur compounds, which would exist as a liquid or gas at standard conditions, calculated as sulfur dioxide (SO<sub>2</sub>) greater than or equal to 500 ppm by volume.

*[40 CFR 70.6 (a)(1) - Periodic Monitoring Requirements] (for Periodic Monitoring Requirements, see: Part II, section A, condition 22; Part III, section C, conditions 11 and 22; Part V, section C, condition 4; Part V, section D, condition 3; Part V, section I, condition 3)*

*[Rule 406 - Specific Contaminants; Version in SIP = 07/25/77, 40 CFR 52.220(c)(42)(xiii)(A) - 12/21/78 43 FR 52489, Subpart (a) only; Current Rule Version = 02/20/79]*

Rule 406 specifies standard conditions, but not dry. Standard conditions for Rule 406 will be calculated as wet.

#### Calculate the SO<sub>2</sub> concentration in the diesel fueled IC engine exhaust gas using the following assumptions/calculations:

1. Maximum sulfur content of the diesel fuel is by permit condition: 0.05 % by weight.
2. Specific gravity of diesel fuel is 0.84: weight of one gallon of diesel fuel is: 8.33 lb/gal x 0.84 = 7 lb/gal.
3. Heating value of diesel fuel from U.S. EPA AP-42, Section 3.3: 19,300 Btu/lb.
4. Gallons of fuel required for 10<sup>6</sup> Btu: 1 lb/19,300 Btu = x lb/ 10<sup>6</sup> Btu: x = 51.8 lb: (51.8 lb)(1 gal/7 lb) = 7.4 gallons per 10<sup>6</sup> Btu.
5. Pounds of sulfur per 10<sup>6</sup> Btu (7.4 gallons): (7.4 gal)(7 lb/gal)(0.0005) = 0.0259 pounds.
6. Mols of sulfur per 10<sup>6</sup> Btu: 0.0259 lb/ 32 lb/mol = 8.09 x 10<sup>-4</sup> mols.
7. Volume of SO<sub>2</sub> produced; assuming that one mol of sulfur produces one mol of SO<sub>2</sub>; 8.09 x 10<sup>-4</sup> mols of SO<sub>2</sub> are produced per 10<sup>6</sup> Btu of diesel burned: (385 ft<sup>3</sup> / mol)(8.09 x 10<sup>-4</sup> mols) = 0.312 ft<sup>3</sup>: (385 ft<sup>3</sup>/mol is at 68 degrees Fahrenheit).
8. From 40 CFR 60, Appendix A, Method 19 the F<sub>w</sub> factor for diesel is 10,320 wscf / 10<sup>6</sup> Btu (68 degrees Fahrenheit, 0 % excess O<sub>2</sub>). Rule 406 specifies the SO<sub>2</sub> concentration at standard conditions, wet, not dry.

For purposes of this calculation, excess air from the combustion process will not be considered in calculating the SO<sub>2</sub> concentration & is the most conservative assumption:

Concentration of SO<sub>2</sub> at zero percent oxygen:

$$0.312 \text{ ft}^3 / (0.010320 \times 10^6 \text{ wscf}) = 30.2 \text{ ppmv}$$

**Conclusion: Diesel fueled IC Engine exhaust SO<sub>2</sub> concentration of 30.2 ppmv complies with Rule 406 SO<sub>2</sub> limit of 500 ppmv.**

**It is assumed that the SO<sub>2</sub> concentration in natural gas fueled IC engine exhaust gas will be conservatively less than that demonstrated above for diesel combustion:**

**Calculate the CO concentration in boiler exhaust gas using the following assumptions/calculations:**

1. Based on U.S. EPA AP-42; Section 1.4, Table 1.4-2, lists the CO emission factor for natural gas combustion in boilers to be 35 lb CO per  $10^6$  ft<sup>3</sup> of natural gas burned. Assume 1000 Btu / ft<sup>3</sup> of natural gas.
2. From 40 CFR 60 Appendix A, Method 19, the  $F_d$  factor for natural gas is 8710 dscf /  $10^6$  Btu (68 degrees Fahrenheit). Rule 407 specifies the CO concentration on a dry basis.
3. For the purposes of this calculation, excess air will not be considered in calculating the CO concentration (most conservative):

Cubic feet of CO produced per  $10^6$  ft<sup>3</sup> of natural gas burned:  
(35 lb) (1 lb mol / 28 lb) (385 ft<sup>3</sup> / mol) = 481 ft<sup>3</sup> CO (385 ft<sup>3</sup> / mol at 68 degrees Fahrenheit)

Dry cubic feet of combustion gas formed from  $10^6$  ft<sup>3</sup> of natural gas burned:  
( $10^6$  ft<sup>3</sup> gas) (1000 Btu / ft<sup>3</sup>) (8710 dscf /  $10^6$  Btu) = 8,710,000 dscf

CO concentration =  $481 \text{ ft}^3 / 8.71 \times 10^6 \text{ ft}^3 = 55.2 \text{ ppm}$  (most conservative)

**Conclusion: Boiler exhaust CO concentration of 55.2 ppmv complies with Rule 407 CO limit of 2000 ppmv.**

- B.** Rule 409: Owner/Operator shall not discharge into the atmosphere from this facility from the burning of fuel, combustion contaminants exceeding 0.23 gram per cubic meter (0.1 grain per cubic foot) of gas calculated to 12 percent of carbon dioxide (CO<sub>2</sub>) at standard conditions averaged over a minimum of 25 consecutive minutes.  
[Rule 409 - *Combustion Contaminants*; Version in SIP = CARB Ex. Order G-73, 40 CFR 52.220(c)(39)(ii)(C) - 09/08/78 43 FR 40011; Current Rule Version = 07/25/77]

**Calculate the Total Particulate Concentration in the diesel fueled IC engine exhaust gas using the following assumptions/calculations:**

1. Based on U.S. EPA AP-42, Section 3.4, Table 3.4-5, the emission factor for total particulate is 0.0697 lb/ $10^6$  Btu. (= 487.9 grains/ $10^6$  Btu)
2. From 40 CFR 60, Appendix A, Method 19 the  $F_w$  factor for diesel is 10,320 wscf/ $10^6$  Btu (68 degrees Fahrenheit, 0 % excess O<sub>2</sub>). Rule 409 specifies the Particulate concentration at standard conditions, wet, not dry.

For purposes of this calculation, excess air from the combustion process will not be considered in calculating the Particulate concentration & is the most conservative assumption:

Concentration of Particulate at zero percent oxygen:

$$(487.9 \text{ grains}/10^6 \text{ Btu}) / (10,320 \text{ wscf}/10^6 \text{ Btu}) = 0.047 \text{ grain}/\text{ft}^3$$

**Conclusion: Diesel fueled IC Engine exhaust Total Particulate concentration of 0.047 grain per cubic foot complies with Rule 409 limit of 0.1 grain per cubic foot.**

**It is assumed that the Total Particulate concentration in natural gas fueled IC engine exhaust gas will be conservatively less than that demonstrated above for diesel combustion:**

**COPY OF APRIL 23, 1997 COMPLETENESS LETTER:**

*April 23, 1997*

*Mr. Carl Moak  
Vice President of Operations  
North American Chemical Corporation  
P.O. Box 367  
Trona, CA 93592*

*RE: Federal Operating Permit Application FOP #90002  
for North American Chemical Corp., Trona, CA.  
Company Number 0009; Facility Numbers 0002, 0007, 0079.*

*Dear Mr. Moak:*

*Attn: Mr. Ross May:*

*The Mojave Desert Air Quality Management District (District) received on February 25, 1997 your application for a Federal Operating Permit (FOP) for the facility located at Trona, CA. The District has completed the review of your application and has determined that the application is Complete as submitted. The District will proceed with further processing as required. However, we request that a second copy of your "FOP Application" be submitted so that it can be forwarded by the District to USEPA, Region 9.*

Your application has been assigned to Mr. William Weese. During the permit development process this engineer will be working closely with you to develop the Federal Operating Permit. As part of this process, the District may require additional information.

*To expedite the issuance process, please reference your facility number and application number on any correspondence. The District wishes to thank Mr. Ross May for his cooperation in developing this complete Title V Application. Should you have any questions, please contact William Weese, Title V Permit Coordinator at (760) 245-1661, ext. 1864.*

*Sincerely,*

*Christopher A. Collins  
Supervising Air Quality Engineer*

*CAC/BW/asg*